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State of California AIR RESOURCES BOARD

EXECUTIVE ORDER A-31-17 Relating to Certification of New Motor Vehicle Heavy-Duty Engines

HINO MOTORS, LTD.

Pursuant to the authority vested in the Air Resources Board by Sections 43100, 43102, and 43103 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-45-3;

IT IS ORDERED AND RESOLVED: That the following Hino Motors, Ltd. 1987 model-year diesel engines have shown compliance with the transient test procedure and standards and are certified for use in motor vehicles with a manufacturer's gross vehicle weight rating greater than 8500 pounds:

Engine Family		lacement ches (Liters)	Exhaust Emission Control Systems (Special Features)
HHMOO6ODAA9	367	(6.0)	Engine Modification (Diesel Injection - Direct)
HHM0065EAA0	396	(6.5)	Engine Modification (Diesel Injection - Direct) (Turbocharger)
HHM0067DAA4	411	(6.7)	Engine Modification (Diesel Injection - Direct)
HHM0094DAA7	575	(9.4)	Engine Modification (Diesel Injection - Direct)

Engine models and codes are listed on attachments.

The following are the certification emission values for these engine families:

Engine Family	Hydrocarbons gm/bhp-hr	Carbon Monoxide gm/bhp-hr	Nitrogen Oxides gm/bhp-hr
HHM0060DAA9	1.0	4.6	4.8
HHM0065EAA0	0.9	1.9	4.8
HHMOO67DAA4	0.8	4.3	4.5
HHM0094DAA7	0.6	2.5	4.4

HINO MOTORS, LTD.

BE IT FURTHER RESOLVED: That the Executive Officer has been provided all material required to demonstrate certification compliance with the Board's emission control system warranty regulations (Title 13, California Administrative Code, Section 2036).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this order.

Executed at El Monte, California this $\frac{27}{}$ day of Ju

K. D. Drachand, Chief Mobile Source Division

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Manufacturer	HINO MCTORS, LTD.	Engine	Family .	ннмообораа9
Evaporative Family	NA	Engine	Type L	-6, 4 Stroke cycle, Natural asp.
	and the second s	Liters	(CID) _	6.014 (367)

ABBREVIATIONS

Ignition System

CA-Centrifugal Advance EEC-Electronic Engine Control EI-Electronic Ignition ESAC-Electronic Spark Advance Control VA-Vacuum Advance VR-Vacuum Retard

wel System

nV-nVenturi Carburetor

CFI, CL, DIO, DIP, EFI, MFI

VEHICLE MODELS:

Exhaust Emissions Control System

AIP-Air Injection-Pump AIV-Air Injection-Valve CL-Closed Loop EGR-Exhaust Gas Recirculation EM-Engine Modification OC-Oxidation Catalyst System SPL-Smoke Puff Limiter or Throttle Delay TOC-Trap Oxidizer, Continual TOP-Trap Oxidizer, Periodical TR-Thermal Reactor TWC-Three-Way Catalyst System

Special Features

CCV-Combustion Chamber Valve CFI-Central Fuel Injection DID-Diesel Injection-Direct DIP-Diesel Injection-Prechamber EFI-Electronic Fuel Injection IC-Intercooler or aftercooler MFI-Mechanical Fuel Injection TC-Turbocharger

rgine: ّ	Front	X	Mid.		Rear	California and the second of t			
Drive:	FWD	And the second s	RWD	X	4WD	Full Time	4WD	Part Time _	

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1987 AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

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Manufacturer	HINO MOTORS,	IAD.	Engine	Famil	У		HHM006	5EAAO	r the blanch of the till place that a service the till place that a decimal service the service the till place the till place that the till place the till p
Evaporative Family	, NA		Engine	Type	<u>L-6,</u>	4	Stroke	cycle,	Turbo-charged
			Liters	(CID)		;	6.485	(396)	

ABBREVIATIONS

Ignition System

CA-Centrifugal Advance
EEC-Electronic Engine Control
EI-Electronic Ignition
ESAC-Electronic Spark Advance
Control
VA-Vacuum Advance
VR-Vacuum Retard

Fuel System

CFI, CL, DID, DIP, EFI, MFI nV-nVenturi Carburetor

VEHICLE MODELS:

Exhaust Emissions Control System

AIP-Air Injection-Pump
AIV-Air Injection-Valve
CL-Closed Loop
EGR-Exhaust Gas Recirculation
EM-Engine Modification
OC-Oxidation Catalyst System
SPL-Smoke Puff Limiter or
Throttle Delay
TOC-Trap Oxidizer, Continual
TOP-Trap Oxidizer, Periodical
TR-Thermal Reactor
TWC-Three-Way Catalyst System

Special Features

CCV-Combustion Chamber Valve CFI-Central Fuel Injection DID-Diesel Injection-Direct DIP-Diesel Injection-Prechamber EFI-Electronic Fuel Injection IC-Intercooler or aftercooler MFI-Mechanical Fuel Injection

TC-Turbocharger

Drive: FWD RWD X 4WD Full Time 4WD Part Time

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1987 AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

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Manufacturer	- HINO	MOTORS,	LTD.	Engine	Famil	у	ннмо	067DAA	4	makeryonga ka sakan dinama sadam
Evaporative	Family	NA	opprobam 1885, y . mostlegon (mostlego - Symposig) o Yakhadiya bolik debas jamal kiy	Engine	Type	L-6,	Stroke	cycle,	Natural	asp.
,				Liters	(CID)		6.728	(411)		

ABBREVIATIONS

Ignition System

CA-Centrifugal Advance EEC-Electronic Engine Control EI-Electronic Ignition ESAC-Electronic Spark Advance Control VA-Vacuum Advance VR-Vacuum Retard

Fuel System

CFI, CL, DID, DIP, EFI, MFI nV-nVenturi Carburetor

Exhaust Emissions Control System

AIP-Air Injection-Pump AIV-Air Injection-Valve CL-Closed Loop EGR-Exhaust Gas Recirculation EM-Engine Modification OC-Oxidation Catalyst System SPL-Smoke Puff Limiter or Throttle Delay TOC-Trap Oxidizer, Continual TOP-Trap Oxidizer, Periodical TR-Thermal Reactor TWC-Three-Way Catalyst System Special Features

CCV-Combustion Chamber Valve CFI-Central Fuel Injection DID-Diesel Injection-Direct DIP-Diesel Injection-Prechamber EFI-Electronic Fuel Injection IC-Intercooler or aftercooler MFI-Mechanical Fuel Injection TC-Turbocharger

VEHICLE MODELS:

Engine:	Front X	Mid.	Rear	
Orive:	FWD	RWD X	4WD Full Time	4WD Part Time

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Manufacturer	HINO MOTORS, LTD.	Engine	Fami'	ly		FHM009	94DAA7	THE IN land within how I have I got up to the	The second se
Evaporative Family	NA	Engine	Туре	L-6,	4	Stroke	cycle,	Natural	asp.
		Liters	(010)	********		9.419	(575)		

ABBREVIATIONS

Ignition System

CA-Centrifugal Advance
EEC-Electronic Engine Control
EI-Electronic Ignition
ESAC-Electronic Spark Advance
Control
VA-Vacuum Advance
VR-Vacuum Retard

Fuel System

CFI, CL, DID, DIP, EFI, MFI nV-nVenturi Carburetor

Exhaust Emissions Control System

AIP-Air Injection-Pump
AIV-Air Injection-Valve
CL-Closed Loop
EGR-Exhaust Gas Recirculation
EM-Engine Modification
OC-Oxidation Catalyst System
SPL-Smoke Puff Limiter or
Throttle Delay
TOC-Trap Oxidizer, Continual
TOP-Trap Oxidizer, Periodical
TR-Thermal Reactor
TWC-Three-Way Catalyst System

Special Features

CCV-Combustion Chamber Valve CFI-Central Fuel Injection DID-Diesel Injection-Direct DIP-Diesel Injection-Prechamber EFI-Electronic Fuel Injection IC-Intercooler or aftercooler MFI-Mechanical Fuel Injection TC-Turbocharger

VEHICLE MODELS:

ng ine:"	Front <u>x</u>	Mid.	Rear	
Drive:	FWD	RWD X	4WD Full Time	4WD Part Time

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Engine Model	Fuel Injection Pump Mfr. Part Number	Injector Mfr. Part Number	Maximum Rated HP at RPM	Fuel Rate mmi ³ /stroke (lbs/Hr)	Maximum Rated Torque at RPM	Fuel Rate mm ³ /stroke (lbs/Hr)
v06EC	Diesel KiKi 22000-4990	Diesel KiKi 23600-1730	150@ 3,000	61 (59.8)	268@ 1,800	60 (35 . 3)
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Engine Model	Fuel Injection Pump Mfr. Part Number		Maximum Rated HP at RPM	Fuel Rate mm ³ /stroke (lbs/Hr)	Torque	Fuel Rate mm ³ /stroke (lbs/Hr)
HO6C-TD	Nippor Denso	Nippon Denso	175@ 3,000	73 (71.5)	383@ 1,600	83 (43.4)
	22010-3782	23610-1412				
		19 19				
		1				

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Fuel Injection Pump Mfr. Part Number	Injector Mfr. Part Number	Maximum Rated HP at RPM	mm ³ /stroke	Torque	Fuel Rate mm ³ /stroke (lbs/Hr)
Nippon Denso 22010-4051	Nippon Denso 23610-1390	155@ 3,000	67 (65.7)	297@ 1,800	65 (38 . 2)
	Fuel Injection Pump Mfr. Part Number Nippon Denso	Fuel Injection Pump Mfr. Part Number Nippon Denso Fuel Injector Mfr. Part Number Injector Mfr. Part Number Nippon Denso	Fuel Injection Pump Mfr. Part Number Nippon Denso Fuel Injector Maximum Rated HP at RPM Maximum Rated HP at RPM Nippon Denso 155@ 3,000	Fuel Injection Pump Injector Maximum Rated HP at Number Part Number At RPM (1bs/Hr) Nippon Denso Denso 155@ 67 (65.7)	Injection Pump Mfr. Part Number Part Number Nippon Denso Injector Maximum Rated HP at RPM Maximum Rated HP at RPM Fuel Rate mm³/stroke (lbs/Hr) Fuel Rate Torque at RPM Rated Torque at RPM 155@ 3,000 67 297@ 1,800

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mission	Control Sys. an	nd (Special Fea	tures)	Engine Modific	cation	- Marenes and Assess - Sub-common and Assess - Marenes and Assess - Asses - Ass
Engine Model	Fuel Injection Pump Mfr. Part Number	Injector Mfr. Part Number	Maximum Rated HP at RPM	Fuel Rate mm ³ /stroke (lbs/Hr)		Fuel Rate mm ³ /stroke (lbs/Hr)
EM100F	Nippon Denso 22010-4101 (For Manual Transmission) Nippon Denso 22010-4440 (For Automatic Transmission)	Nippon Denso 23610-1430	190@ 2,700	88 (77.6)	427@ 1,600	93 (48.6)